Lessons learned from the X1 PBPM Incident

Summary of Incident: At one of our X-ray beam lines, an NSLS technician needed to work on a photon beam position monitor to replace the water hoses as part of a routine maintenance activity. There was an initial difficulty in identifying the responsible person for the component. Finally, believing the equipment to be managed by the PRT, the technician sought help in accessing the unit from the beam line Local Contact who assisted in the removal of the faceplate. Neither the local contact nor the technician were knowledgeable of the electrical hazards within the component and when the technician began his work, he received a 300 volts, 20 mA shock across his shoulders from a DC power supply that had not been secured. The technician was not injured. The incident was reported and a detailed investigation was conducted.

There are several key lessons from this event:

NSLS and Beamline Management:

Ensure that all beamline and facility equipment with significant hazards has clear ownership and a responsible person. It is vital that all hazardous equipment has someone designated to maintain safe configuration, including appropriate warning signs, and to act as a contact for questions concerning hazards, operation, maintenance, and troubleshooting.

Supervisors:

- Do not assign work as "skill of the worker" on equipment with electrical or other energy sources that you are unfamiliar with. "Skill of the worker" should be restricted to tasks for which the worker has been formally qualified by the supervisor, and it is known that the work is low hazard. Work permits should be expected for work with unfamiliar equipment that is potentially hazardous unless a designated responsible person has confirmed the equipment is in a safe state and has placed the first lock-out when required.
- When screening work to determine hazard level and work planning requirements, be particularly cautious with equipment that has no readily identifiable responsible person. "Legacy" equipment with unclear ownership may have hazards that have been long forgotten and work should not proceed on these systems until their function, hazards and operation are defined.

Workers:

- All electrical equipment must be deenergized before work may begin on the system. You must assure that the power supply is deenergized, locked, and tagged out and confirmed safe before work begins. Make no assumptions. If there is uncertainty, contact your supervisor and ask to initiate a formal work plan.

Staff and Users:

- Do not alter the configuration of equipment or components unless you are authorized to make change and are knowledgeable of the hazards associated with the equipment.
- Use inherently safe voltages (< 50 V a.c./d.c. or < 10 mA) whenever possible when designing and constructing equipment.